Selection of Surface Disinfectants

Selection of an appropriate surface disinfectant is governed by several factors including the type of surface to be disinfected, temperature, weather conditions, effectiveness against specific disease causing organisms, and time required for the disinfectant to inactivate the agent. The efficacy of most disinfectants is impaired by the presence of organic material and thorough cleaning prior to their application is critical. Consult your veterinarian, federal or state animal health official, or a technical representative of the company manufacturing the disinfectant for specific recommendations.

Precautions

When using surface disinfectants, always:

1) Follow label directions regarding use and safety precautions.
2) Take proper precautions to protect the environment and ensure that no one is injured.
3) Devices and coverings for protecting the hands, skin, nose, mouth, and eyes should be worn when indicated by the product label.

Disclaimer: Trade names are used in this publication solely to provide specific information. Mention of trade names does not constitute a guarantee or warranty of the product by CDFA or an endorsement by the Department of the product over other products. CDFA bears no responsibility for liability resulting from the use of the described products**.**

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Glossary of Biosecurity Terminology

Disinfectant: a substance that destroys harmful microorganisms. According to the Environmental Protection Agency (EPA), a disinfectant destroys 100% of the vegetative (actually growing) bacteria of a certain species under specified conditions. However, disinfectant does not include efficacy against fungi, viruses, *Mycobacterium tuberculosis* or bacterial spores (unless specifically tested against those organisms with EPA approved methods).
Sanitizer: reduces vegetative cells, but not the spores of, bacteria to a safe level as may be judged by public health requirements (by reduction of 99.9% of vegetative bacteria).
Virucide: kills or inactivates viruses. For EPA label claims, EPA accepted protocols must be used in testing specific viruses.
Sporicide: kills all microorganisms including bacterial endospores, a very resistant form of certain microorganisms, which develop as a means of survival under adverse conditions.
Fungicide: kills or inactivates fungi. For EPA label claims, EPA accepted protocols must be used in testing specific fungi.
Bactericide: kills or inactivates bacteria. For EPA label claims, EPA accepted protocols must be used in testing specific bacteria.
Detergent: Cleansing agents that assist in the removal of soils by emulsifying grease and suspending dirt particles.
Disinfectant detergent: Combination product for one-step cleaning, disinfecting, and deodorizing.
Tuberculocidal: kills *Mycobacterium tuberculosis*, an acid fast bacteria which is generally more difficult to kill than most bacteria. Making label claims for tuberculocidal activity requires testing under specific EPA protocols.
Material Safety Data Sheet (MSDS): Informational sheet describing properties, usages, and safety concerns of a material or product.

CDFA™

ANIMAL HEALTH AND FOOD SAFETY SERVICES

Biosecurity

Selection and Use of Surface Disinfectants

Types of Surface Disinfectants

Phenolic compound
One-Stroke Environ®

Instructions for use:
1) Use only on washable, precleaned hard surfaces.
2) Use a 1:256 solution (½ ounce/gallon of water) according to manufacturer directions.

Advantages:
Bactericidal, virucidal, tuberculocidal, fungicidal

Disadvantages:
Undiluted material is corrosive to tissues; causes eye and skin damage; harmful if swallowed.

Chlorhexidine diacetate
Nolvasan®-S

Instructions for use:
1) Disinfection of veterinary and farm premises; *some formulations appropriate for hand washing (Nolvasan® Skin and Wound Cleanser or Surgical Scrub).*
2) For inanimate objects: dilute 3 ounces/gallon of water; for farm and veterinary premises dilute 1 ounce/gallon of water.

Advantages:
Bactericidal, virucidal

Disadvantages:
Not effective against spore-forming bacteria; do not contaminate water or food with disinfectant; harmful if swallowed; irritating to eye and mucous membranes.

Sodium hypochlorite (household bleach)
(5.25% sodium hypochlorite)

Instructions for use:
1) Clean before disinfecting hard surfaces.
2) Allow a mixture of 1 ounce bleach/gallon of water (higher concentrations should be used when high levels of organic matter are present) to contact surface for 5 minutes, then rinse with water.
3) Once mixed with water, bleach breaks down quickly - replace disinfecting solutions daily.
4) Mix in well ventilated area and wear gloves.

Advantages:
Bactericidal, virucidal

Disadvantages:
Wear gloves when applying; skin, eye, nose and throat irritant when concentrate inhaled; ingestion can cause esophageal injury, stomach irritation, prolonged nausea, and vomiting. Household bleach forms toxic gas when mixed with ammonia or vinegar - Do not mix with other cleaners.

Quaternary ammonium chloride
Spectrosol®

Instructions for use:
1) Use on hard, nonporous surfaces at a dilution of 1 ounce Spectrosol®/gallon of water.

Advantages:
Bactericidal, virucidal, fungicidal. One-step cleaning and disinfectant; hard water or organic soil (5% load) does not affect efficacy of disinfectant.

Disadvantages:
Can cause eye and skin damage; wear goggles and gloves when handling.

Alcohol (ethanol and isopropyl 70-95%)

Instructions for use:
1) Disinfect hard surfaces by direct application.

Advantages:
Bactericidal, tuberculocidal, fungicidal

Disadvantages:
No action against spores or nonenveloped viruses; no detergency; flammable (store in closed container away from sources of ignition); eye irritation and damage; irritating if vapor inhaled; prolonged skin contact will cause irritation.

Quaternary ammoniums with bis-n-tributyltin oxide
Roccal®- D Plus

Instructions for use:
1) Use to clean and disinfect hard surfaces on farms, veterinary clinics, animal facilities, and vehicles. Useful for boot baths.
2) Apply diluted Roccal® mixture (½ounce/gallon water) by immersion or flushing solution over surfaces, allow to stand 10 minutes prior to rinsing. To clean heavily soiled areas, use up to 1½ ounce Roccal®/gallon water.
3) Boot baths use 1 ounce Roccal®/gallon water. Change daily and anytime bath is visibly soiled.

Advantages:
Bactericidal, fungicidal; one-step soapless disinfectant detergent; effective in the presence of organic soil; non-corrosive to many surfaces; safe to use in immediate vicinity of animals.

Disadvantages:
Concentrate is corrosive to tissues; causes eye damage and skin irritation; do not get in eyes, on skin, or on clothing; harmful/fatal if swallowed.